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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/646,848	08/21/2003	Andrew J. Hazelton	PA0525-US/11269.58	1443

7590 06/19/2006

The Law Office of Steven G. Roeder  
5560 Chelsea Avenue  
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EXAMINER
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PRESTON, ERIK D

ART UNIT	PAPER NUMBER
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2834

DATE MAILED: 06/19/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

**Application No.**

10/646,848

**Applicant(s)**

HAZELTON, ANDREW J.

**Examiner**

Erik D. Preston

**Art Unit**

2834

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 27 April 2006.  
2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.  
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1,3-7,9-32 and 34-55 is/are pending in the application.  
4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.  
6) ☒ Claim(s) 1,3-6,9-11,15-32 and 34-55 is/are rejected.  
7) ☒ Claim(s) 7,12-14 is/are objected to.  
8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.  
10) ☒ The drawing(s) filed on 21 August 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)  
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)  
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 4/27/2006.  
4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.  
5) ☐ Notice of Informal Patent Application (PTO-152)  
6) ☐ Other: \_\_\_\_\_.

## **DETAILED ACTION**

### ***Claim Rejections - 35 USC § 102***

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims 1,3-5,8-11,20,34-38 & 43-50 are rejected under 35 U.S.C. 102(b) as being anticipated by Dombrovski et al. (US 6313556).

With respect to claims 1,6,8 & 37, Dombrovski teaches a mover including an outer surface (as seen in Fig. 1), said mover having a magnet component (Fig. 1, #72) and a conductor (Fig. 1, #52), said mover defines a first passageway (Fig. 1, #76 & 78) and a second passageway (Fig. 1, #44) including an inlet, the first passageway encircling a portion of the second passageway (as seen in Fig. 1), and a circulation system (Fig. 1, #16 & 20) comprising a fluid source that directs a first fluid to the first passageway and a second fluid to the second passageway, wherein the fluid source controls the temperature and flow of the first fluid so that the temperature of the outer surface is approximately equal to an ambient temperature (the stator cooling means will cool the stator support (Fig. 1, #74) which forms an outer surface of the mover), wherein the second fluid is approximately boiling at the inlet (the cryogenic fluid used in this system would inherently be boiling at least during the initial operation of the device).

With respect to claims 3,4,9 & 34-36, Dombrovski teaches the mover of claims 1 & 37, wherein the second fluid is boiling.

With respect to claims 5,38 & 50, Dombrovski teaches the mover of claims 1,37 & 49, wherein the mover is positioned in a room that is at room temperature, and

wherein the temperature of the first fluid at the first inlet is approximately equal to the room temperature.

With respect to claims 10 & 11, Dombrovski teaches the mover of claim 1, wherein the circulation system creates a partial vacuum in the second passageway (which it inherently does as the coolant changes temperature).

Claims 20-26 & 43-49 are rejected under 35 U.S.C. 102(b) as being anticipated by Carr, Jr. et al. (US 4126798).

With respect to claims 20,21 & 43, Carr teaches a mover including a magnet component (Fig. 2, #30) and a conductor (Fig. 2, #25), said mover that defines a first passageway (for cooling the stator as seen in Fig. 2) in the mover and a sealed second passageway (located inside of Figs. 2 & 5, #26) in the mover, the second passageway being filled with a second fluid (air, Col. 5, Lines 46-59) that is not actively circulated; and circulating a first fluid from a fluid source through the first passageway.

With respect to claims 22 & 44, Carr teaches the mover of claims 20 & 43 further comprising the step of transferring heat from a conductor array of the conductor component with a heat transfer (Fig. 2, #27) that is in direct thermal communication with the conductor component and transfers heat from the conductor component.

With respect to claims 23 & 45, Carr teaches the mover of claims 22 & 44, wherein the mover includes a third passageway (indicated generally at Fig. 2, #27 & 70) and the heat transferer transfers heat from the conductor components to the third passageway (Col. 2, Lines 2-14).

With respect to claims 24 & 46, Carr teaches the mover of claims 23 & 45, further comprising a third fluid (helium) circulating through the third passageway.

With respect to claims 25 & 47, Carr teaches the mover of claims 23 & 44, wherein the heat transferer includes a heat pipe (the apparatus of Carr will act as a heat pipe).

With respect to claims 26 & 48, Carr teaches the mover of claims 23 & 44, wherein the heat transferer includes a thermally conductive structure (all matter is thermally conductive).

With respect to claim 49, Carr teaches a method for making a mover combination, the method comprising the steps of: Providing a mover having a magnet component and a conductor component and controlling the temperature of the mover with the method of claim 43.

### ***Claim Rejections - 35 USC § 103***

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims 15-19, 39-42 & 51-55 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dombrovski et al. (US 6313556). Dombrovski teaches the mover of claims 11, 37 & 43, but it does not specifically teach said mover being used in an isolation system, stage assembly, or an exposure apparatus for producing semiconductor wafers. However, isolation systems, stage assemblies, and exposure apparatuses for producing semiconductor wafers using rotary motors were well known at the time of the invention. It would have been obvious to one of ordinary skill in the art

at the time of the invention to use the mover of Dombrovski in isolation systems, stage assemblies, and exposure apparatuses for producing semiconductor wafers because superconducting motors are more energy efficient than conventional motors.

Claims 28-32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Carr, Jr. et al. (US 4126798). Carr teaches the mover of claim 20, but it does not specifically teach said mover being used in an isolation system, stage assembly, or an exposure apparatus for producing semiconductor wafers. However, isolation systems, stage assemblies, and exposure apparatuses for producing semiconductor wafers using rotary motors were well known at the time of the invention. It would have been obvious to one of ordinary skill in the art at the time of the invention to use the mover of Dombrovski in isolation systems, stage assemblies, and exposure apparatuses for producing semiconductor wafers because superconducting motors are more energy efficient than conventional motors.

Claims 27 is rejected under 35 U.S.C. 103(a) as being unpatentable over Carr, Jr. et al. (US 4126798) in view of Dombrovski et al. (US 6313556).

With respect to claim 27, Carr teaches the mover of claim 20, wherein the mover is positioned in a room that has a room temperature, but it does not explicitly teach the temperature of the first fluid in the first passageway. However, Dombrovski teaches that a temperature of a first fluid in a first passageway is approximately equal to the room temperature (Col. 5, Lines 30-49). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the first fluid of Carr in view of the first fluid cooling means as taught by Dombrovski because it provides an equivalent and equally

well-known means for cooling the stator of a dynamoelectric machine (Dombrovski, Col. 5, Lines 30-49).

***Allowable Subject Matter***

Claims 7,12-14 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter:

With respect to claim 7, while prior art does teach some of the material included in the claim, it does not teach the combination comprising both the first and second passageways being included in the conductor component.

With respect to claim 12, while prior art does teach some of the material included in the claim, it does not teach the combination comprising a pair of spaced apart magnet arrays and a conductor component that includes a conductor array positioned between the magnet arrays.

With respect to claim 13, while prior art does teach some of the material included in the claim, it does not teach the combination comprising a linear motor.

With respect to claim 14, while prior art does teach some of the material included in the claim, it does not teach the combination comprising a voice coil motor.

***Response to Arguments***

Applicant's arguments with respect to claims 7,20-32 & 43-55 have been considered but are moot in view of the new ground(s) of rejection.

Applicant's arguments filed 4/27/2006 have been fully considered but they are not persuasive.

In response to the applicant's argument that Dombrovski does not teach a the water cooler controlling the temperature and flow of the first fluid so that the temperature of the outer surface of the mover is approximately equal to an ambient temperature, it is noted that Dombrovski teaches that the water is cooled to a temperature that is approximately equal to an ambient temperature, and is then used to cool the stator of the machine (Dombrovski, Col. 5, Lines 30-49). This arrangement would produce a stator that maintains an outer temperature that is approximately equal to an ambient temperature.

### ***Conclusion***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. US 3743867, US 5032748 & US 6825583

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any



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extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Erik D. Preston whose telephone number is (571)272-8393. The examiner can normally be reached on Monday through Friday 8-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Darren Schuberg can be reached on (571)272-2044. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



06/09/2006



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